

Blue

Work Order ID 58297

May 3, 2010 10:34:46 AM



Page 1

Item ID: D206-667-203BL

Accept



Setup Start



Revision ID:

Item Name: Crosstube Aft, Blue

Stop



Start Date: 03/05/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 13/05/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals:

Process Plan:



Date: 16-5-08

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop



Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Draw
Number

Draw
Rev.

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

Draw Nbr	Revision Nbr
D206-667-243	C

100



DOCUMENT CONTROL

DC

Document Control

Memo

0.00

Photocopy bluefile and create labels as per PPP D206-667-203 CHG003

810/05/12

JJ for BG 10/05/12

110



BENDING MACHINE - CROSSTUBES

CNC Bend 2

CNC Alpha 160 Bender

Memo

0.00

Bend tube as per Dwg D206-667-243 using CNC bender program 206L-AF and Folio FT

(X) MB 10-05-12

120



QC15- Crosstube Dimensional Check

QC

Quality Control

Memo

0.00

810/05/12

0.00

(Q)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 58297

May 3, 2010 10:34:46 AM



Page 2

Item ID: D206-667-203BL

Accept



Setup Start



Revision ID:

Item Name: Crosstube Aft, Blue

Stop



Start Date: 03/05/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 13/05/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop



Sequence ID/
Work Center ID

130



Operation
Description

Crosstubes

Set Up/
Run Hours

0.00

Draw
Number

Draw
Rev.

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

Crosstubes

Crosstubes

Memo

* Check Dim sheet before Drilling & 5/10/12

1-Drill pilot holes in tube using drill Jig DT8583 & DT8584 as per Dwg D206-667-243. Drill all (3) top holes.

2-Drill and Ream all holes in tube to finish size using drill Jig DT8583 & DT8584 as per Dwg D206-667-243 Check dimensions between holes on all four sides.

3-Flip tube and switch drilling Jigs from right to left, left to right. Locate Jigs off existing holes using "T" pins.

4-Drill pilot holes using drill Jig DT8583 & DT8584 as per Dwg D206-667-243. Drill only the top (2) holes.

5-Drill & ream the top (2) holes to finish size using drill Jig DT8583 & DT8584 as per Dwg D206-667-243

6-Drill Fwd rivet holes using drill Jig DT8789FWD as per Dwg D206-667-143. Note: Fwd side has 3x top holes.

7-Drill Aft rivet holes using drill Jig DT8789 as per Dwg D206-667-243.

8-C'sink holes as per Dwg D206-667-243.

9 -Scribe part # and batch # using vibrating stylus as per Dwg D206-667-243 Inside of Cuff(Donot engrave on outside of tube)

10 -Deburr & Inspect for surface damage. Repair damage within limits as per Dwg

MP-05-12

MP-05-13

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 58297

May 3, 2010 10:34:46 AM



Page 3

Item ID: D206-667-203BL

Accept



Setup Start



Revision ID:

Item Name: Crosstube Aft, Blue

Stop



Start Date: 03/05/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 13/05/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: _____

Date: _____

Tooling: _____

Date: _____

Run Start



QC: _____

Date: _____

SPC (Y/N): _____

Date: _____

Stop


**Sequence ID/
Work Center ID**
**Operation
Description**
Set Up/
Run HoursDraw
NumberDraw
Rev.Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

D206-667-243

140



HandFXtube

Hand Finishing Crosstubes

Crosstubes Chemical Conversion

0.00

(ix) (x) MB 10-05-13

150



QC

Quality Control

QC3- Inspect Part Finish

0.00

(v) 10/05/13

(x) _____

160



QC

Quality Control

QC5- Inspect part completeness to step on W/O

0.00

(v) 10/05/13

(x) _____

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
 Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 58297

May 3, 2010 10:34:46 AM



Page 4

Item ID: D206-667-203BL

Accept



Setup Start



Revision ID:

Item Name: Crosstube Aft, Blue

Stop



Start Date: 03/05/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 13/05/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: _____

Date: _____

Tooling: _____

Date: _____

Run Start



QC: _____

Date: _____

SPC (Y/N): _____

Date: _____

Stop

**Sequence ID/
Work Center ID**

170



Outsource2

Outsource process - NDT

**Operation
Description**

Outsource process - NDT per QSI038 4.1

Set Up/
Run HoursDraw
NumberDraw
Rev.Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

0.00

CX 10/5/13 ①

180



Packaging

Packaging

0.00

Pv 10/5/13 ①

Packaging

Memo

0.00

Ensure copy of NDT results attached to work order.

190



QC

QC5- Inspect part completeness to step on W/O

0.00

Memo

0.00

Ensure results are as per Dwg D206-667-243

MM 10 05 17 ①

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
 Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
 Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 58297

May 3, 2010 10:34:46 AM



Page 6

Item ID: D206-667-203BL

Accept



Setup

Start



Revision ID:

Item Name: Crosstube Aft, Blue

Stop



Start Date: 03/05/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 13/05/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run

Start



QC:

Date:

SPC (Y/N):

Date:

Stop


**Sequence ID/
Work Center ID**

220



Crosstubes

**Operation
Description**
Set Up/
Run HoursDraw
NumberDraw
Rev.Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

0.00

Crosstubes

Memo

0.00

Crosstubes

1-Install nut plates as per Dwg D206-667-243.

10 05 19 01

230



Skidtubes

Skidtubes

0.00

Memo

0.00

Skidtubes

1-Install support using 0.03" to 0.06" thick layer of magnobond 6398 per QSI 015. Let cure for 12h after installation and prior to packaging. Note: (3) top holes should be facing up.

A/R Magnobond 6398: 14021 EXP:01/2011

2-Install supports and clamps as per Dwg D206-667-243. Torque clamps to 80-100 in lb M 10.05.20

10 05 19 01

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 58297

May 3, 2010 10:34:46 AM



Page 7

Item ID: D206-667-203BL

Accept



Setup Start



Revision ID:

Item Name: Crosstube Aft, Blue

Stop



Start Date: 03/05/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 13/05/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: _____

Date: _____

Tooling: _____

Date: _____

Run Start



QC: _____

Date: _____

SPC (Y/N): _____

Date: _____

Stop

Sequence ID/
Work Center ID

240



QC

Quality Control

Operation
Description

QC5- Inspect part completeness to step on W/O

Set Up/
Run Hours

0.00

Draw
NumberDraw
Rev.Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

S 10/05/20



250



Packaging

Packaging

Pick Kit

0.00

0.00

10-521

S

260



QC

Quality Control

QC4- 100% Inspect kits for completeness

0.00

0.00

S. slasbs



W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
 Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 58297

May 3, 2010 10:34:46 AM



Page 8

Item ID: D206-667-203BL

Accept



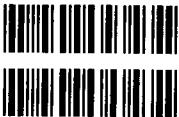
Setup Start



Revision ID:

Item Name: Crosstube Aft, Blue

Stop



Start Date: 03/05/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 13/05/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan:

Date:

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/
Work Center ID

270

Operation
DescriptionSet Up/
Run HoursDraw
NumberDraw
Rev.Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

0.00

10-5-258

Packaging

Packaging

0.00

Packaging

Memo

Identify and pack for shipping as per PPP D206-667-203
Location:
PPP Rev: 1

280



QC21- Final Inspection - Work Order Release

0.00

QC

Memo

0.00

Quality Control

10/05/2010

CD 10/15/2010

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

May 3, 2010 10:34:51 AM

Page 1

Work Order ID: 58297



Parent Item: D206-667-203BL



Parent Item Name: Crosstube Aft, Blue

Start Date: 03/05/2010

Required Date: 13/05/2010

Comments:

Start Qty: 1.00

Required Qty: 1.00

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
 Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

May 3, 2010 10:34:51 AM

Page 2

Work Order ID: 58297



Parent Item: D206-667-203BL



Parent Item Name: Crosstube Aft, Blue

Start Date: 03/05/2010

Required Date: 13/05/2010

Comments:

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	---------------	----------------	--------

D206-667-203TRN



Manufactured

No

Each

1



3-58346 M3 10-05-12 ✓

Crosstube Turning Detail

Location	Loc Qty	Loc Code
----------	---------	----------

LG	2	_____
53649	1	_____
53651	1	_____

D2873-043



Manufactured

No

Each

2



Nut Plate Assembly

Location	Loc Qty	Loc Code
----------	---------	----------

LG	58	_____
53966	20	_____
<u>56466</u>	18	_____
57337	20	_____

D2873-045



Manufactured

No

Each

2



Nut Plate Assembly

Location	Loc Qty	Loc Code
----------	---------	----------

LG	54	_____
<u>53967</u>	15	_____
<u>53968</u>	20	_____
57336	19	_____

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

May 3, 2010 10:34:51 AM

Page 3

Work Order ID: 58297



Parent Item: D206-667-203BL



Parent Item Name: Crosstube Aft, Blue

Start Date: 03/05/2010

Required Date: 13/05/2010

Comments:

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	---------------	----------------	--------

D2892-1



Manufactured

No

Each

47.0000

2

Support

Blue

Location

Loc Qty

Loc Code

LG

47

41986

12

42785

20

53124

13

53348

2

D3595-063-450



Manufactured

No

Each

67.0000

4

RUBBER CUSHION

Location

Loc Qty

Loc Code

LG

67

53775

39

58161

28

MS20601-AD4W10



Purchased

No

Each

170.0000

14

RIVET

Location

Loc Qty

Loc Code

LG051

100

114245

100

ST322

70

113220

70

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
 Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

May 3, 2010 10:34:51 AM

Page 4

Work Order ID: 58297



Parent Item: D206-667-203BL



Parent Item Name: Crosstube Aft, Blue

Start Date: 03/05/2010

Required Date: 13/05/2010

Comments:

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	---------------	----------------	--------

MS21042L5 	Nut	Purchased	No				Each	697.0000	4		10-05-21 SJ	
---------------	-----	-----------	----	--	--	--	------	----------	---	--	-------------	--

Location	Loc Qty	Loc Code
ST300	697	
113523	26	
113537	3	
1141C8	168	
114437	100	
114449	400	

MS21920-22 	Clamp(per MIL-DTL-8783C)	Purchased	No				Each	130.0000	4			
----------------	--------------------------	-----------	----	--	--	--	------	----------	---	--	--	--

Location	Loc Qty	Loc Code
LG	130	
111210	31	
114077	99	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

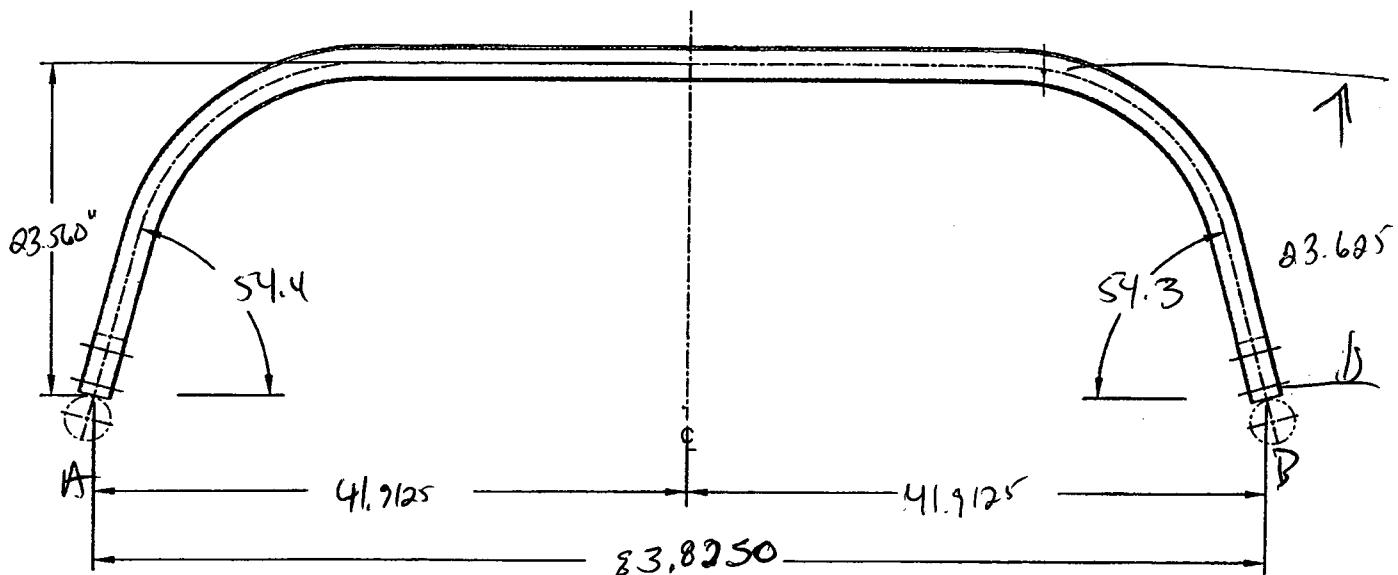
Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
 Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART AEROSPACE LTD	Work Order:	58297
Description: Crosstube High Aft (206L)	Part Number:	D206-667-203
Inspection Dwg: D206-667-243 Rev: C		Page 1 of 1

Required Dimension	Min	Max
Height	23.39	23.65
1/2 Span	41.79	42.05
Angle	54	56
Total Span	83.58	84.1



Comments

QC15 Inspection	S
Date	10/5/12

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	
B	09.11.17	Dwg Rev updated	KJ	
C	09.12.14	Dimensions update per Dwg Rev C	KJ	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
 Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

8 7 6 5 4 3 2 1

D

D

C

C

B

B

A

A

Item	Qty	Part Number	Description
1	X	D206-667-243	CROSSTUBE ASSEMBLY (206L HIGH AFT)
2	1	D6004-115	CROSSTUBE
3	2	D2873-043	NUT PLATE
4	2	D2873-045	NUT PLATE
5	2	D2892-1	SUPPORT
6	4	D3595-063-450	RUBBER CUSHION
7	4	MS21920-22	CLAMP
8	14	MS20601AD4W10	RIVET (OR NAS9302B-4-10)
9	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)

GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6004-115
FINISHED LENGTH = 104.91±0.020
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D206-667-243" AND BATCH NUMBER ON
INSIDE OF CUFF USING VIBRATING STYLUS.
- 7) WEIGHT: 21.9 lbs
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- 9) RUN CUTTER OFF PART WHERE INDICATED. BLEND OUT EDGE LONGITUDINALLY,
TRANSITION SHOULD BE SMOOTH.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 8 PASSES. MAXIMUM TUBE FLATTENING DUE
TO BENDING IS 6% BASED ON O.D.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 12) INSTALL D2892-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER
QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-22 CLAMPS WITH D3595-063-450 RUBBER CUSHIONS TO SECURE THE
D2892-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMP MECHANISMS ARE
LOCATED ON CROSSTUBE SUPPORTS.
- 14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE
OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS
SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT
LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS ARE SHOWING IN
SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 51227
3810-5-03

RELEASED
08/11/06

C	REVISE GENERAL NOTES/PART LIST (ZN D7-1); REORGANIZED VIEWS AND REFORMATTED DRAWING TO CURRENT STANDARDS. D3595-063-450 WAS D2858-400-773 (ZN D6-2 & A5-2); REMOVED REF. & ADD TOLERANCES (ZN 4-3, C5-3, D3-3); RELOCATED FLAG #6 (ZN A8-3) PER NCR 210; MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET 4.	RF	08.11.06
B	ADD HOLES AND NUT PLATES FOR COMPATABILITY WITH BHT/AA SKUTUBES	PH	05.07.26
A	NEW ISSUE	CP	00.11.17
REV.	DESCRIPTION	BY	DATE
DESIGN	<i>90</i>	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	<i>10</i>	DRAWING NO.	REV. C
MFG. APPR.	<i>8</i>	D206-667-243	SHEET 1 OF 4
APPROVED	<i>10</i>	TITLE	SCALE
DE APPR.	<i>10</i>	CROSSTUBE ASSY (206L HIGH AFT)	NTS
DATE	08.11.06	COPYRIGHT © 2000 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY OTHER PURPOSE OR DISCLOSED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD	

8 7 6 5 4 3 2 1

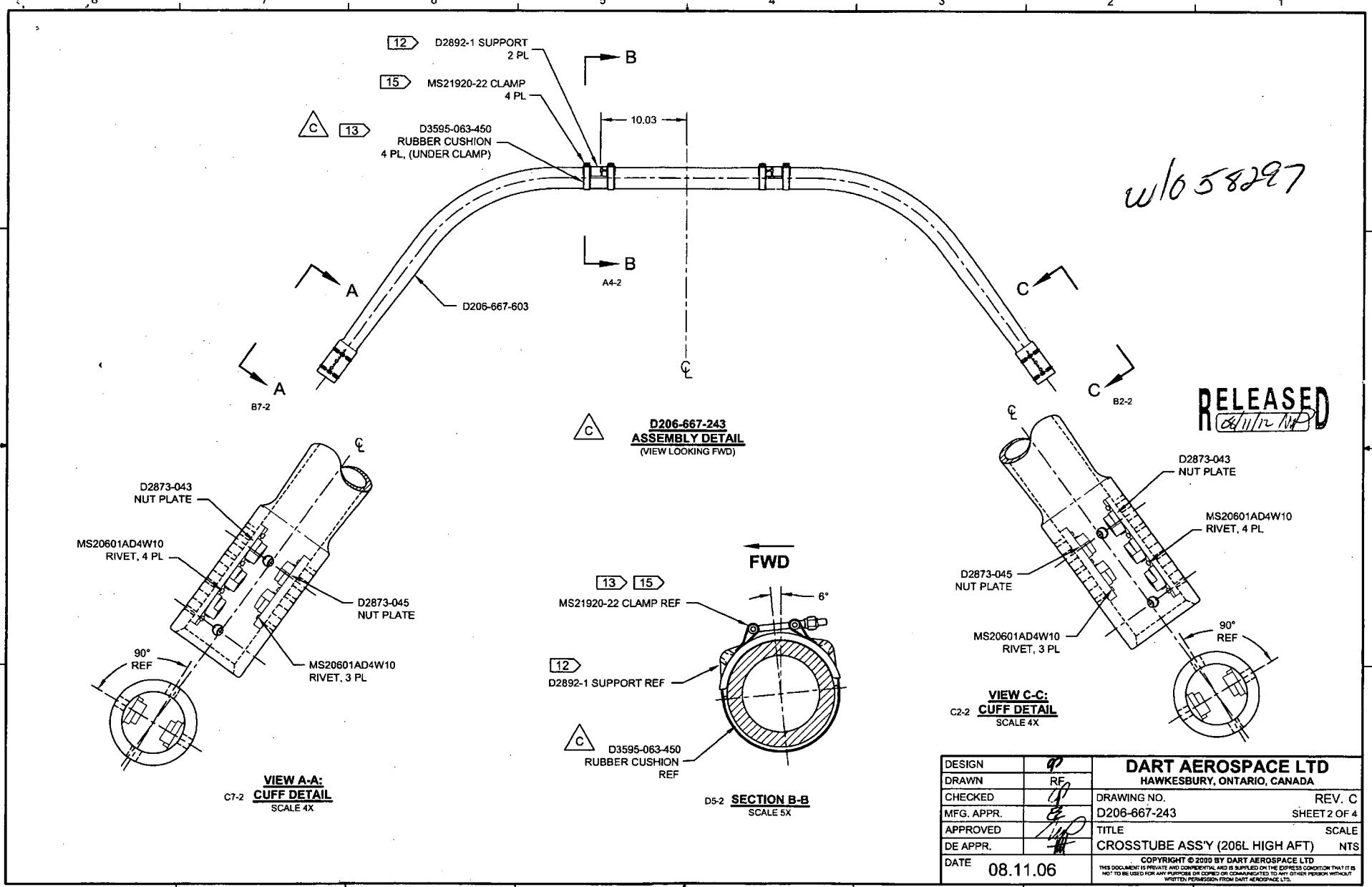
A

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
 Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

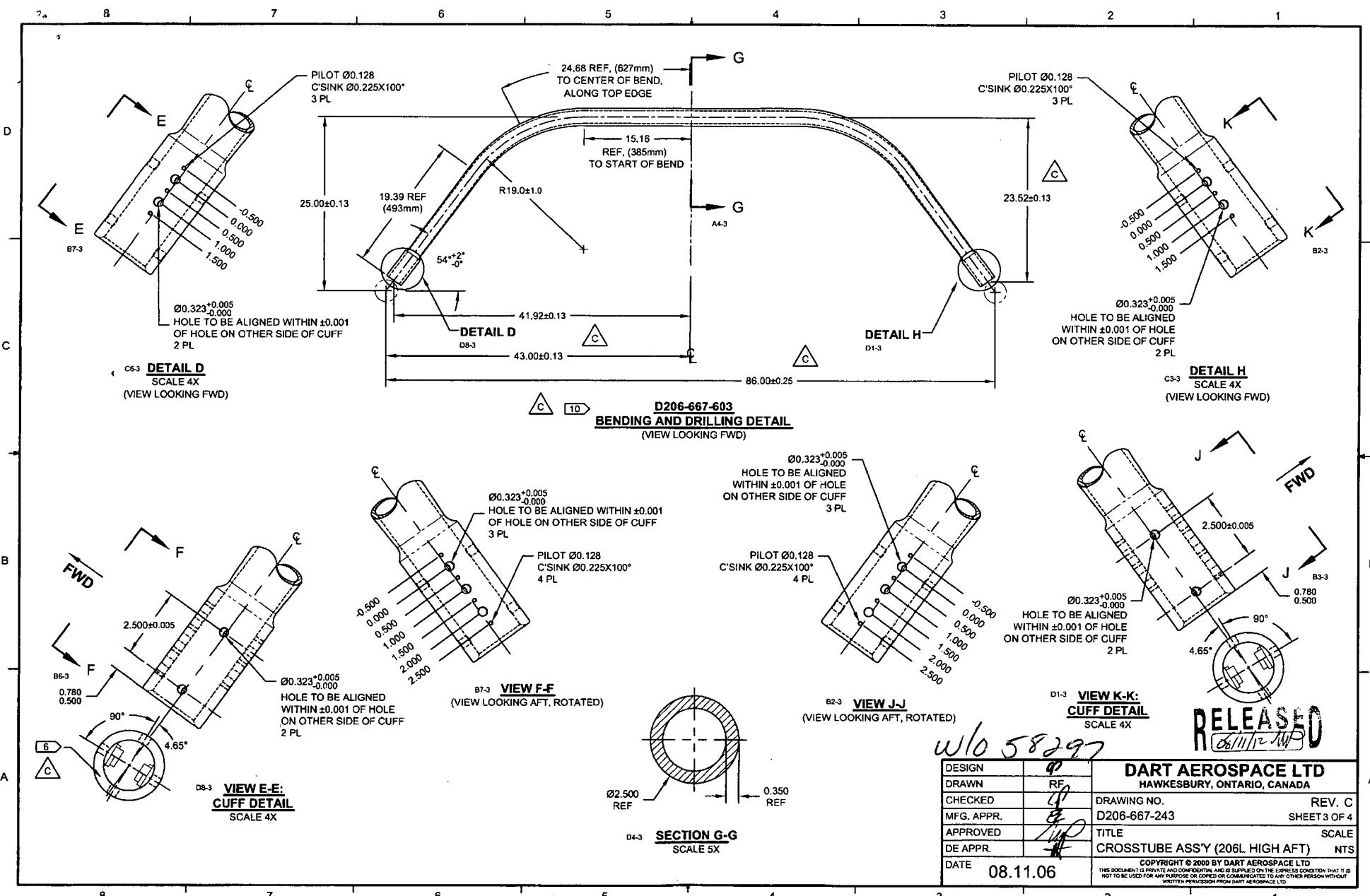


W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
 Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



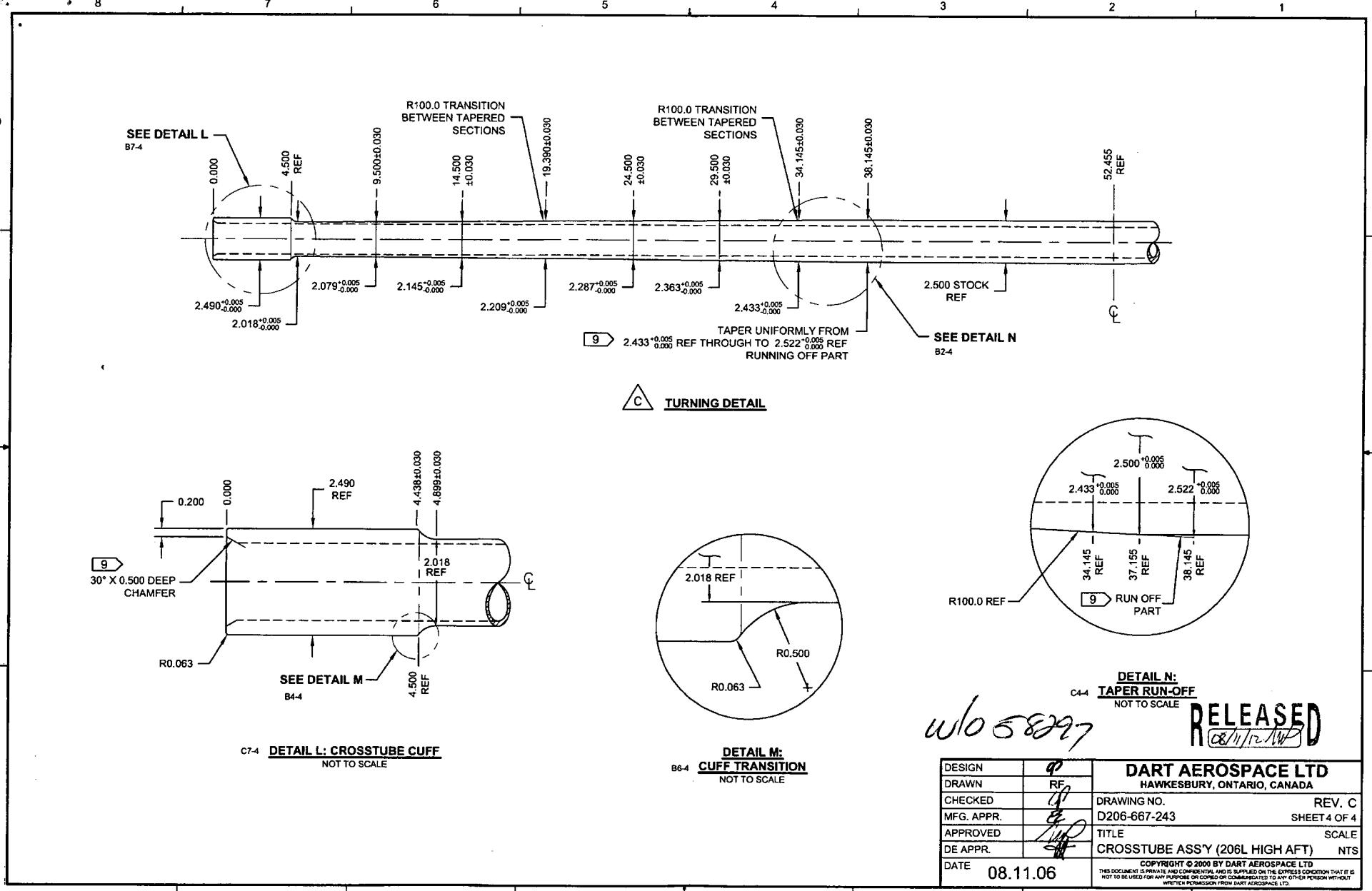
DESIGN	<i>DP</i>	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	<i>CP</i>	DRAWING NO.	REV. C
MFG. APPR.	<i>E</i>	D206-667-243	SHEET 3 OF 4
APPROVED	<i>MP</i>	TITLE	SCALE
DE APPR.	<i>MP</i>	CROSSTUBE ASSY (206L HIGH AFT) NTS	
DATE	08.11.06	COPYRIGHT © 2000 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE COPIED, REPRODUCED OR DISCLOSED OUTSIDE THE COMPANY.	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
 Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
 Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

S

5.5

Item	Qty	Rev	Qty	Qty	Qty	Qty	Part Number	Description	
	-011		-201	-103	-203	-105	-205		
X							D206-667-011	SPACER MEDIUM KIT	
							D206-667-013	NUT PLATE NYLON 101/-103/-105/-203/-205	
							D206-667-015	NUT PLATE NYLON (201)	
		X					D206-667-101	CROSS TUBE INSTALLATION, 206A/B HIGH FWD	
							D206-667-201	CROSS TUBE INSTALLATION, 206A/B HIGH AFT	
			X				D206-667-103	CROSS TUBE INSTALLATION, 206L/L HIGH FWD	
				X			D206-667-203	CROSS TUBE INSTALLATION, 206L/L HIGH AFT	
					X		D407-667-105	CROSS TUBE INSTALLATION, 407 HIGH FWD	
						X	D407-667-205	CROSS TUBE INSTALLATION, 407 HIGH AFT	
1							D206-667-141	CROSS TUBE ASSEMBLY, 206A/B HIGH FWD	
2							D206-667-241	CROSS TUBE ASSEMBLY, 206A/B HIGH AFT	
3			1				D206-667-143	CROSS TUBE ASSEMBLY, 206L/L HIGH FWD	
4				1			D206-667-243	CROSS TUBE ASSEMBLY, 206L/L HIGH AFT	
5					1		D407-667-145	CROSS TUBE ASSEMBLY, 407 HIGH FWD	
6						1	D407-667-245	CROSS TUBE ASSEMBLY, 407 HIGH AFT	
10		2	2	2	*2		D2861-1	SUPPORT	
11				2			D2862-1	SUPPORT	
12						*1	D2864-1	SUPPORT	
13		2	2	*2			D2866-400-694	ABRAZIVE	
14					*2		D2866-400-773	ABRAZIVE	
15						*1	D2866-600-851	ABRAZIVE	
16		4	2	*1			MS21920-20	CLAMP	
17					*4		MS21920-22	CLAMP	
18						*2	MS21920-24	CLAMP	
19		4	4	4			AN5-32A	BOLT	
20					4		AN5-34A	BOLT	
21		4	4	4	4		MS21042L5	NO LOCK WASHER	
22		3	5	8	8	1	AN960JD516	WASHER	
23							*2	D3193-01	CHAIN
30	5								
31	3						AN4-6A	BOLT	
32	16						AN4-7A	BOLT	
33	2						AN960JD416	WASHER	
							D3193-041	SPACER MEDIUM ASSEMBLY	
40		2	2	2	2	1	*2	D2873-043	NUT PLATE
41			2	2	2		*2	D2873-045	NUT PLATE
42						1	D2872-043	NUT PLATE	
43							D2872-045	NUT PLATE	
44				10			AN5-7A	BOLT	
45		10	10	10	10	10	AN5-10A	BCUT	
46		9	4		4		AN5-30A	BOLT	
47				4		4	AN5-32A	BOLT	
48		2	10	10	10	10	AN960JD516	WASHER	
49			3				MS21042L5	NUT (OVERSIZE) 3423	

NOTES: PARTS ARE INCLUDED IN D206-667-141/241/43/243, & D407-667-145/245 ASSEMBLIES ABOVE

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
 Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



LIQUID PENETRANT TEST REPORT

P- 15323

CLIENT	Dart Aerospace	DATE	May 13-2010	PAGE	1 OF 1
ATTENTION	LINDA / CHANTEL	ACUREN JOB NO.	188-10 0754	TIME	AM <input checked="" type="checkbox"/> PM <input type="checkbox"/>
ADDRESS	1220 ABERDEEN, HACKEBURY ON,	POMO NO.	[1889]	WORK LOCATION	5TH F
PROJECT	F.P.I. ON CROSS TUBES	ACCEPTANCE STD.	ASTM 1417	REV./DATE	2007
ITEM(S) EXAMINED	5 PCS				

OB DESCRIPTION	PROCEDURE NO. LT-0002 REV./DATE	TECHNIQUE NO. LT-2 REV./DATE	
MATERIAL ALUMINUM	THICKNESS	—	
ART NO. —	MATERIAL ALUMINUM	THICKNESS —	
COPE WET FLUORESCENT LIQUID PENETRANT INSPECTION	CARRIED OUT 100% EXTERNAL	—	
TEST DETAILS			
METHOD <input checked="" type="checkbox"/> FLUORESCENT <input type="checkbox"/> VISIBLE	<input checked="" type="checkbox"/> WATER WASH <input type="checkbox"/> SOLVENT REMOVABLE <input type="checkbox"/> POST EMULSIFIED		
MANUFACTURER MAGNAFLUX	BLACK LIGHT S/N 16459 <input type="checkbox"/> OUTPUT > 1000 μW/CM ² <input type="checkbox"/> AMBIENT < 2 fc		
ENTRANT 2L67 MINIMUM DWELL TIME 4510 MIN.	LIGHTING EQUIP. <input type="checkbox"/> FLASHLIGHT <input type="checkbox"/> TROUBLELIGHT <input type="checkbox"/> OUTPUT > 100 fc @ SURFACE		
ENTRANT REMOVER 420 MINIMUM DRY TIME >10 MIN.	OTHER LABINO		
DEVELOPER SKD 52 MINIMUM DWELL TIME 10 MIN.	LIGHT METER S/N 1098866 CAL DUE DATE —		
DEVELOPER TYPE <input checked="" type="checkbox"/> NON AQUEOUS <input type="checkbox"/> AQUEOUS <input type="checkbox"/> DRY			
TEST SURFACE			
SURFACE CONDITION <input type="checkbox"/> AS GROUND <input type="checkbox"/> AS WELDED <input checked="" type="checkbox"/> MACHINED <input type="checkbox"/> SHOT BLASTED <input checked="" type="checkbox"/> CLEAN BARE METAL			
SURFACE TEMPERATURE <input type="checkbox"/> < -4°C/20°F <input type="checkbox"/> -4°C/20°F TO 10°C/50°F <input type="checkbox"/> 10°C/50°F TO 52°C/125°F <input type="checkbox"/> > 52°C/125°F			
RESULTS- (<input type="checkbox"/> METRIC <input type="checkbox"/> IMPERIAL)			

1 -CROSS TUBE-W.O. 58297 ✓	1 -CROSS TUBE-W.O. 58488 ✓	1 -CROSS TUBE-W.O. 57783 ✓	1 -CROSS TUBE-W.O. 57784 ✓
----------------------------	----------------------------	----------------------------	----------------------------

10-05-11

Type of Services
Agreement of Acuren Group Inc. to perform services extends only to those services provided for in writing. Under no circumstances shall such services extend beyond the performance of the requested services. It is expressly understood at all descriptions, comments and expressions of opinion reflect the opinions or observations of Acuren Group Inc. based on information and assumptions supplied by the owner/operator and are not intended nor can they be construed as representations or warranties. Acuren Group Inc. is not assuming any responsibilities of the owner/operator and the owner/operator retains complete responsibility for the engineering, manufacture, repair and use decisions as a result of the work or other information provided by Acuren Group Inc. In no event shall Acuren Group Inc.'s liability in respect of the services referred to herein exceed the amount paid for such services.

Standard of Care
In performing the services provided, Acuren Group Inc. uses the degree, care and skill ordinarily exercised under similar circumstances by others performing such services in the same or similar locality. No other warranty, expressed or implied, is made or intended by Acuren Group Inc.

SIGNATURES			
CLIENT REPRESENTATIVE <u>Tan Titley</u> PRINT	<u>Tom RA</u> SIGNATURE	DTR # E27408	
TECHNICIAN (SIGNATURE): <u>Mike Johnston</u>	REPORT		
NAME (PRINT): <u>Mike Johnston</u>	REVIEWED BY:		
CGSB LEVEL <u>2</u> SNT LEVEL <u>6066</u>	2 nd TECHNICIAN	NAME	INITIALS
CGSB REG. NO.	CGSB LEVEL	SNT LEVEL	

WHITE - CLIENT COPY

CANARY - OFFICE COPY

PINK - TECHNICIAN COPY

GOLD - OFFICE COPY